

rounded; costal area very wide with large areolae, five deep in widest part; subcostal area biseriate adjacent to discoidal; discoidal area short, extending about one-fourth of its length beyond apex of triangular process of pronotum, obovate in shape, three areolae deep in widest part, areolae of sutural area subequal in size to those of costa.

Length, 3.60 mm; width, 2.00 mm.

Type (male), allotype (female), and two paratypes, Pará, Brazil, October 9, 1938, taken by E. J. Hambleton and H. F. G. Sauer.

This species is not easily confused with other members of the genus. The lateral margins of elytra are not clothed with hairs, the antennae indistinctly pilose, the discoidal area less raised or inflated, and the general color of nervures darker than in other Brazilian species.

***Corythucha globigera* Breddin**

Corythucha globigera Breddin, Soc. Ent. 16: 81. 1901.

Type (male), Santa Inez, Ecuador, R. Haensch, Breddin collection, which was kindly sent us by the late Dr. Walter Horn, of the Berlin Museum. Numerous specimens, Lima, Perú, April 25, 1936.

Hood large, strongly inflated behind, abruptly constricted near the middle and sharply narrowed anteriorly. Elytra with moderately large, tumid elevation, the costal area triseriate. Two spots on each paranotum, one or two spots on tumid elevation, a transverse band near base and another near apex of elytra, dark fuscous; apical band of elytra sometimes more or less obsolete. Hood somewhat infuscated. Median carina about one-third as high as hood, slightly arched in front, mostly uniseriate, usually with two or three areolae divided at highest part; lateral carinae distinct. Margins of paranota, elytra, and some of veinlets of hood, elytra, and median carina beset with short spines.

ENTOMOLOGY.—*Some genera of flies of the family Syrphidae.*¹ FRANK M. HULL, University of Mississippi. (Communicated by ALAN STONE.)

Recent studies of syrphid flies have disclosed several forms that do not appear to belong properly in any present genera. These are based upon undescribed species. In addition, I now find that the fly *Meromacrus vittata* Hull described several years ago should be assigned to a new genus for reasons given below.

***Lycopale*, n. gen.**

Medium-sized flies of the subfamily Eristalinae with bright-yellow, flattened tomentum upon the thorax, bare eyes, and open marginal cell. Antennae short, the third joint oval, with dorsal arista. Front tomentose. Face with abundant pubescence and some pile, obscuring the ground color. Thorax black, pollinose, with thick, rather long, and dense tufts of yellow tomentum along the suture and edge of humerus. Scutellum simple. Abdomen oval, rather convex, the color metallic black, the pile rather appressed and short. Wings with helophiline venation and a prominent dip in the third vein. Anterior margin brown; marginal cell widely open. Legs simple, the hind femora

a little thickened and having a patch of spinules at its base.

Genotype: *Meromacrus vittata* Hull.

This genus is related either to *Meromacrus* Rondani through its tomentose pile or to *Helophilus* Meigen through its open marginal cell and vittate thorax. The latter relationship seems more probable. The genus differs considerably in its facies from *Helophilus*; the abdomen is much more convex than in our northern broad and flattened species of that genus, and has besides the same peculiar pile which characterizes *Meromacrus*.

***Kryptopyga*, n. gen.**

Eyes of male very widely separated, the upper half of occiput extraordinarily tumid and swollen but not rounded posteriorly. The rounded, swollen, anterior part ends in a rim that marks the edge of a deep, concave cup. Face practically vertical, a little vertical below. Antennae unusual, very elongate and slender. The first joint is long; the second joint is so short as to be almost overlooked; the third is very long, at least three times as long as the first and densely long, erect pilose on one side; the dorsal arista is practically eliminated, a

¹ Received September 15, 1943.

minute spurlike remnant being all that remains. Thorax not unusual. Scutellum broad and narrow without spur, spine, or indentation. Abdomen elongate, a little attenuated basally. The third and fourth segments are greatly dilated into a subquadrate club; the fourth segment takes the form of a vertical, downward directed, expanded hypopygium; this pseudohypopygium is hidden between the overlapping sides of the third segment; the true hypopygium can be barely seen from a ventral aspect. Legs small and weak, the hind femora spindle-like and microdentine. Venation typically microdentine.

Genotype: *Kryptopyga pendulosa* n. sp.

This genus is closely related to the odd African *Ptilobactrum* Bezzi. It is distinguished from it chiefly by the subpetiolate abdomen and the elongated pseudohypopygium.

Kryptopyga pendulosa, n. sp.

Male.—Length 12 mm excluding antennae; antennae 5.3 mm.

Head: the occiput and vertex exceedingly bloated and tumid; the eyes broadly separated, the posterior margin of occiput sharp and shelving instead of rounded. Face bulbous on the lower portion, in ground color light brown becoming brownish yellow ventrally and along the sides, leaving the middle broadly darker brown. Pile of face pale, shining brassy and appressed. The vertex and upper part of front are dark shining brown with short pale pile; the area immediately above the antennae and on its sides is shining chestnut-brown and bare. Antennae extremely long and pendulous. The first joint is slightly curved, flattened upon the inner surface, barely over one-fourth as long as the third joint; the second joint is minute and buttonlike and about one-eighteenth as long as the third joint; third joint slender, enlarged just before the blunt apex, 4 mm long, and upon the outer half thickly clothed with long, erect, delicate, dark-brown pile. The arista is a mere spur, located a short distance from the base of third joint. Eyes bare.

Thorax: dark, dull brownish black, with faint trace of the darker brown, pair of slender, widely separated, medial vittae that are confluent a short distance before the scutellum. Outside of this pair of vittae on each side there is a wide, longitudinal stripe of appressed, golden pile, reaching almost to the scutellum

and crossing a slender transverse band of similar pile running along the transverse suture, which, however, extends only a short distance inward medial to the longitudinal stripe. Posterior margin of humeri banded with similar pile. Scutellar margin almost evenly rounded but actually very bluntly protuberant in the middle; its color yellowish brown.

Abdomen: elongate, club-shaped, scarcely narrowed basally, the third segment slightly wider than the basal half of the abdomen. First segment elongate, pale brown, subtranslucent, strongly transverse striate, darker brown upon its anterior corners and concolorous posteriorly with the basal half of the rather long second segment. Second segment darker brown posteriorly. Third segment barely longer than the first two segments, dark brownish black, produced downward into an enormous, thickened club, the fourth segment actually vertical and thrust downward, simulating a false hypopygium. The false hypopygium is actually concealed by the third segment which is so curved around that only a small opening is visible ventrally by turning the fly upside down. The third segment of the venter is produced into a curious shield-shaped overlapping flap, which serves still further to close off the genitalia.

Legs: dark reddish brown, blackish upon the basal half of the hind femora, extensively upon the middle femora. Anterior femora more reddish brown. Anterior tibiae basally and almost the whole posterior tibiae reddish brown; elsewhere these and the middle tibiae are blackish; there is silvery pollen upon the tibiae in several places. Hind femora moderately thickened, spindly upon the basal half.

Wings: strongly tinged with brown, with heavy stigmal cross vein, well developed vena spuria and a strong brown patch, diffuse-edged, occupying part of the apex of the wing.

Holotype.—One male. Soekaboemi, Java, May 1926, purchased from E. Le Moul, 1933-189. In the British Museum of Natural History.

Remarks.—This fly is related to the African *Ptilobactrum* Bezzi, in which, however, the antennae are not so long nor is the abdomen elongate nor does it terminate in such a peculiar fourth segment. In the females of *Ptilobactrum* the antennae are without the plushlike pile. *Kryptopyga* differs from *Paramixogaster* Brunetti in the presence of the long pile upon the

antennae of the male. The antennae of that genus are bare in the male and lack the curious development of the abdomen, although the abdomen is pedunculate. There are several Australian species with elongate but nonhairy antennae and with normal abdomen.

Genus *Spheginobaccha* de Meijere

DEXIOSYRPHUS, n. subgen.

Elongate flies of medium size or larger. The head is subglobular, the occiput tumid, swollen, and rounded. Eyes narrowly separated, approximated about halfway between ocelli and antennae in the male. Antennae short, the third joint oval with dorsal arista. Face retreating with a barely suggested tubercle. Occiput deeply incised at a point on either side near the top. Thorax almost bare, the pile microsetate. Transverse suture produced as a complete deep crease across the whole of the mesonotum. Abdomen elongate, subcylindrical, and slightly attenuated. The legs have the hind femora slender, their base tapered and spindle-formed, their apex without trace of spines. Wings heavily villose. Marginal cell widely open; apical cross vein spurred below. There is no upward spur from the last section of the fourth longitudinal vein below the end of vena spuria.

Type of subgenus: *Spheginobaccha* (*Dexiosyrphus*) *funeralis*, n. sp.

This subgenus is related to *Spheginobaccha* de Meijere. It differs in the presence of the deep crease across the mesonotum and the virtual absence of the upward spur from the fourth vein.

Spheginobaccha (*Dexiosyrphus*) *funeralis*,
n. sp.

Male.—Length 14 mm; wing 10 mm.

Head: subglobular, the occiput tumid and strongly developed posteriorly adding to the globular shape of the head. There is a strong, submarginal crease in the occiput a short distance down on each side of the eye margins which from above appears as a V-shaped fissure on the back of the occiput. Occiput and vertex and face and front black in color, the occiput grayish white pollinose. Ocelli set well forward close to the point of approximation of the eyes; the eyes fail to meet by a distance equal to the width of the posterior ocelli. There is a low facial tubercle near the middle of the face and the cheeks are almost absent. Antennae short, the

third joint large, oval, about one-half again as long as wide, the arista short, slender except at the extreme base; first antennal joint dark brown, second and third light brownish orange. Pile of face, front, and vertex black, of the posterior occiput above and below whitish in color.

Thorax: dark black, dully shining with on each side a rugose stripe which at the level of the posterior humeri broadly diverges and is hence continued as two stripes almost to the end of the thorax. Pile of thorax very short, almost microscopic. Scutellum and pleura black, the former with a few rugae, the posterior margin of the mesopleura and the whole ventral part of the pteropleura with thick silvery pollen.

Abdomen: very long, somewhat slender, narrower than the thorax, slightly club-shaped on the third and fourth segments, subcylindrical in shape; the first, whole of the second, and base of the third segment with numerous very fine transverse linear grooves or furrows. On the sides of the second segment just before the middle, submarginal in position, is a pair of small, oval, diagonal, silvery pollinose spots, pointed at each end. Abdomen black and chiefly shining; the sides of the long second and third segment, which are together practically as long as the remainder of the abdomen, are quite parallel; sides of second segment emarginate; on the sides of the third and fourth segment, widely separated in the middle is a pair of slender diagonal pilose and pollinose-margined hair-bands.

Legs: almost wholly light reddish brown, the base of the hind femora, the basal third or half of all of the tibiae pale yellow, the hind femora slightly thickened, the pile everywhere very fine and exceedingly sharp-bristly and flat-appressed.

Wings: pale brown. There is no spur from the third longitudinal vein, no stigmal cross vein, the vena spuria is well developed, the wings are uniformly villose, the terminal sections of the subapical and postical cross veins are almost straight and slightly wavy in the latter.

Holotype.—One male. South Africa, R. E. Turner 1933-69; East Cape Province, Katberg, 4,000 feet, XII, 1932. In the British Museum.

Spheginobaccha dextoides, n. sp.

Distinguished from *S. macropoda* Bigot by the replacement of the yellowish, translucent, subtriangular spots of the abdomen with slen-

der, diagonal, gray-pollinose bands, most conspicuous upon the fourth segment.

Male.—Length 14 mm; wing 10 mm.

Head: occiput tumid, silvery gray pollinose, the crease very conspicuous. Vertex shining brown, somewhat convex, becoming light chestnut-brown on a wedge behind the ocelli. Eyes approximate, failing to touch by a distance equal that between the posterior ocelli. The front is shining brown. Face dark brown, shining. There is a narrow, transverse band of yellow pubescence across the face at the epistoma and up narrowly along the eye margins. Antennae short, wholly reddish brown, the third joint about twice as long as wide, dully pointed. Eyes bare.

Thorax: black, feebly shining; microscopically pilose, mixed black hairs among brownish yellow hairs. There is a rugose area on each light-brown humerus, and on each medial edge of the humerus there is a similar area that immediately divides to form slender stripes running the greater part of the thorax. Scutellum broad, very convex, dark brown. The pleura are black with a narrow, vertical, silvery stripe. There is a tuft of long, golden-yellow hair on the anterior margin of the propleura. Squamae rather short, pale in color.

Abdomen: rather elongate, basally petiolate, the first and second segments and the basal third of the third segment with almost parallel sides. Actually the first segment is a little wider than the second and the club-shaped fourth

segment and terminal part of the third segment are three times as wide as the second segment. Abdomen subcylindrical, the fourth segment considerably longer than the third segment, the third segment barely shorter than the second segment. Abdomen shining black, chiefly dark brownish black on the fourth segment, with a diagonal, grayish-silvery pollinose stripe on the sides of the second segment before the middle, widely interrupted. There is a similar diagonal stripe in the opposite direction on the third segment and on the fourth segment a diagonal, subbasal, silvery-gray stripe practically continuous across the middle. Pile of abdomen flat, bristly, black except on the light pollinose area where it is pale yellowish. Sides of third and fourth segments strongly curved over.

Legs: chiefly dark brown, the base of all the femora, the basal third of all the tibiae yellowish. The apical half of the anterior femora beyond the strong basal bulge and bend are light reddish brown. Hind femora slightly thickened basally.

Wings: nearly hyaline, clear brownish along the anterior marginal edge to the end of the costa. Third longitudinal vein straight without spur into the first posterior cell. There is a spur from the fourth longitudinal vein into the first posterior cell near the end of the vena spuria.

Holotype.—One male. Port St. John, Pondoland, November 1923, South Africa, R. E. Turner, 1924-6. In the British Museum.

ZOOLOGY.—*Zoeal larvae of the blue crab* *Callinectes sapidus Rathbun*.¹ MILDRED SANDOZ, Virginia Fisheries Laboratory, and SEWELL H. HOPKINS, Texas A. and M. College. (Communicated by WALDO L. SCHMITT.)

In 1942 eggs of the blue crab were hatched in the laboratory under favorable and unfavorable environmental conditions. Controlled experiments showed that under favorable conditions blue-crab eggs hatch into normal first crab zoeae. Eggs heavily infected with fungi or bacteria and those kept under unfavorable salinity and temperature conditions either failed to hatch or hatched into prezoeae that usually died soon. The optimum salinity range for hatch-

ing was found to be about 23 to 30 parts per thousand. Eggs failed to hatch outside the temperature range of 19°–29° C. Churchill (1942) concludes that there is a prezoeal stage in the blue crab. Our data clearly show that occurrence of prezoeae after hatching is not a normal one, but a result of development under unfavorable environmental conditions. Williamson (1910), working on *Portunus puber*, also of the family Portunidae, states that the larvae were obtained in the first zoeal stage.

¹ Received January 19, 1944.